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10/021,837	12/12/2001	Hiroki Morimura	96790.P379	3959

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EXAMINER

STREGE, JOHN B

ART UNIT PAPER NUMBER

2625

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/021,837

Applicant(s)

MORIMURA ET AL.

Examiner

John B Strege

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The Preliminary Amendments to the specification (received 2/21/02) have been received and entered.

#### ***Claim Objections***

2. Claim 32 is objected to because of the following informalities: the claim has been numbered twice as seen on line 1. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7,10,12-17,20,22-28,31,33-38, and41 are rejected under 35 U.S.C. 102(e) as being anticipated by Russo et al. USPN 6,330,345 (hereinafter "Russo").

Claim 22 discloses, "a fingerprint collation apparatus comprising: an image capturing section for converting a fingerprint ridge/valley pattern into an electrical quantity in accordance with a parameter value set in a parameter setting section, and outputting image data representing a fingerprint image corresponding to the fingerprint

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ridge/valley pattern.” Russo discloses a method and apparatus that accounts for device variabilities and adjusts for variable conditions that are present when imaging an individual's biometric feature, in particular a fingerprint image (col. 1 lines 15-20). An image of a fingerprint is acquired by array unit 210 (figure 2) and the analog image is outputted to the A/D converter 250. The image is taken with a certain sensitivity or gain in the sense elements (col. 5 lines 22-23)(corresponding to the parameter values).

Claim 22 further discloses, “a capture control section for receiving the image data output from said image capturing section, calculating an evaluation index for evaluating image quality of the fingerprint ridge/valley pattern image from the image data, and if the evaluation index falls outside a range of a preset reference value, changing the parameter value set in said parameter setting section so as to make the evaluation index fall within the range of the reference value to output image data which is received from said image capturing section and the evaluation index of which falls within the range of the reference value.” Russo discloses a digital signal processor 220 (corresponding to the capture control unit) that evaluates the image to determine if it is of sufficient quality for identification purposes (col. 5 lines 18-20). If the image is evaluated to be below a standard quality the digital signal processor 220 feeds control signals 245 into the array unit 210 to automatically adjust the gain on sense elements within array unit 210 (col. 5 lines 20-23). This continues for a number of iterations of gain adjustments until a satisfactory image has been gathered from array unit 210 (col. 5 lines 28-33). The evaluation is done using an evaluation score (col. 7 line 44 – col. 8 line 19)(corresponding to the evaluation index).

Claim 22 concludes by reciting, "collation means for comparing and collating image data output from said capture control section with registered image data prepared in advance." Russo discloses that when the image is satisfactory the processed data is sent to a computer where the data can be used for a variety of identification purposes (col. 5 lines 30-34). Russo further discloses comparing the acquired fingerprint against those of an authorized user or users which are stored in a memory (col. 10 lines 43-45).

Regarding claim 23, as discussed Russo outputs the image data after changing the gain adjustments for each iteration (col. 5 lines 18-33).

Regarding claim 24, Russo discloses sense elements in the array unit 210 to detect an image of the fingerprint ridge/valley pattern which is then fed into A/D converter 250 (col. 5 lines 4-17).

Regarding claims 25-28, Russo discloses that the invention analyzes the image contrast or the ratio of black to white by examining histograms of the captured data. Specifically, the histograms of gray level data are created for each of the specific regions (col. 7 lines 44-51). A histogram is a measure of the spatial frequency of the image data.

Regarding claim 31, Russo discloses that non-functional areas are determined by calculating the variance along a region, row, or a column of the image. Alternatively, dead pixels can be determined by looking for a maximum or minimum intensity value in the pixels (col. 6 lines 32-51).

Claims 1-7 are broader claims of the same limitations of claims 22-28, thus the same arguments used for the claims 22-28 regarding a fingerprint system apply also to the broader limitations of an image capture device in claims 1-7.

Claim 10 is similar to claim 31, however claim 10 is a broader claim. As claim 31 contains narrower limitations the same argument used for claim 31 apply equally to claim 10.

Claims 12-17 are similar to claims 1, and 3-7, except claims 12-17 are method claims. As Russo discloses both a method and apparatus the same arguments used for claims 1, and 3-7 apply equally to claims 12-17.

Claim 20 is similar to claim 10, thus the same arguments applied for claim 10 apply equally to claim 20.

Claim 33 is similar to claim 22, except claims 33 is a method claim. As Russo discloses both a method and apparatus the same arguments used for claim 22 apply equally to claim 33.

Claim 34 is similar to claims 24, thus the same arguments used for claim 24 apply equally to claim 34.

Claims 35-38 are similar to claims 25-28, thus the same arguments used for claims 35-38 apply equally to claims 35-38.

Claim 41 is similar to claim 31, thus the same arguments used for claim 31 apply equally to claim 41.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al. USPN 6,330,345.

Claim 43 is dependent on claim 22 (rejected by Russo). Russo does not explicitly disclose a finger resting detection section. However, this is well known in the art of fingerprint identification and therefore the Examiner declares Official notice. The motivation for having a finger resting detection system would be to save unnecessary processing by only activating the system when a finger is present.

7. Claims 8-9,11,18-19,21,29-30,32,39-40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al. USPN 6,330,345 in view of Ort et al. USPN 5,659,626.

Claim 29 is dependent on claim 22 (rejected above by Russo). Russo does not explicitly disclose that the evaluation carried out by the capture control section is a ridge count index.

It is well known in the art of fingerprint matching to carry out a ridge count to determine the quality of an image. One such example of this is shown in the conventional system of Ort, where a grayscale image of a fingerprint is analyzed by a

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ridge count to obtain a quality map (col. 5 line 65 – col. 6 line 8). This allows for rapid comparison of the captured fingerprint for identification purposes (col. 5 lines 59-64).

Russo and Ort are analogous art because they are from the same field of endeavor of fingerprint matching.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine Russo and Ort to carry out a ridge count for quality purposes. The motivation for doing so is that it would allow for quicker comparison of the captured fingerprint for identification purposes. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Russo and Ort to obtain the invention as specified in claim 29.

Regarding claim 30, Russo discloses a histogram for evaluation of the quality of the image (col. 7 line 44- col. 8 line 19).

Regarding claim 32, as seen in table 4 of Ort (col. 41 lines 1-40), the ridge count is obtained in the horizontal direction and in the vertical direction in order to obtain the ridge count index.

Claims 8-9 are broader claims of the same limitations of claims 29-30, thus the same arguments used for the claims 29-30 regarding a fingerprint system apply also to the broader limitations of an image capture device of claims 8-9.

Claim 11 contains similar limitations to claim 32, except the limitations of claim 11 are broader. Thus the same arguments used for claim 32 apply equally to claim 11.

Claims 18-19 are similar to claims 8-9, thus the same arguments applied for claims 8-9 apply equally for claims 18-19.



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Claim 21 is similar to claim 11, thus the same arguments used for the rejection of claim 11 apply equally for claim 21.

Claims 39-40 are similar to claims 29-30 except 39-40 are method claims. As Russo and Ort disclose both method and apparatus the same arguments used for claims 29-30 are equally applicable to claims 39-40.

Claim 42 is similar to claim 32, thus the same arguments used for claim 32 apply equally to the rejection of claim 42.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,282,063 Method and Apparatus for automatic brightness and contrast control in an image capture system.

USPN 6,463,165 Individuals Checking Apparatus.

USPN 6,134,340 Fingerprint feature correlator.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B Strege whose telephone number is (703) 305-8679. The examiner can normally be reached on Monday-Friday between the hours of 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JS



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